Knowledge Organiser
Maths

Year 11 Term 1
Additional Maths
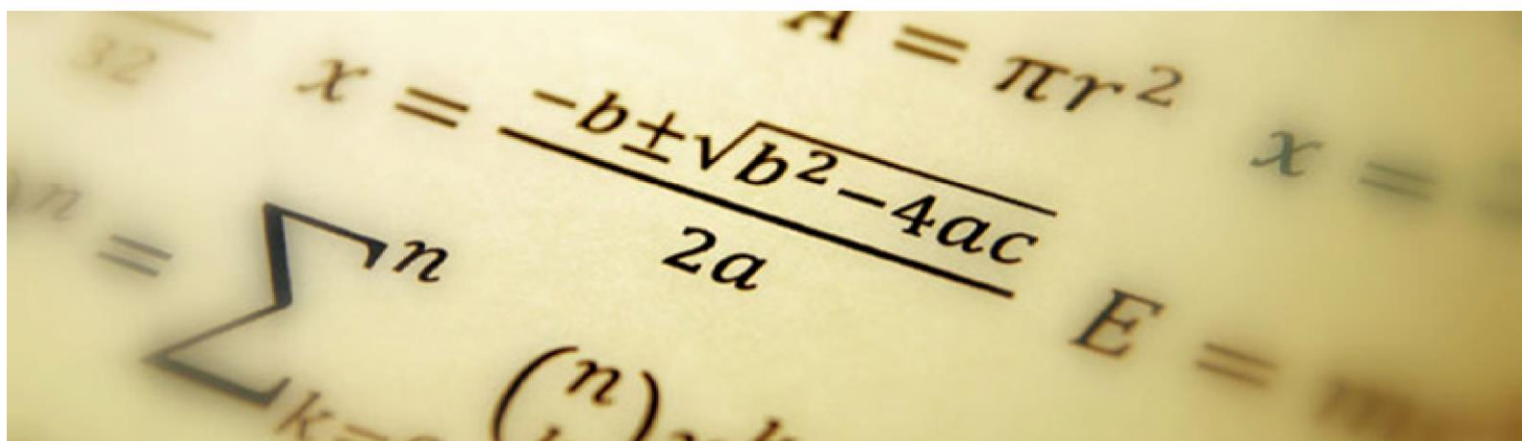
Additional Online Homework:

Platform	Due:

Log-in details:

Website: https://vle.mathswatch.co.uk/vle/
Username: (firstname)(lastname)@dustonschool
Password: berrywood

Website: https://www.methodmaths.com/login.html
Centre ID: duston
Username: (firstname)(lastname)
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Grade 1

Addition/Subtraction

(+) becomes +   eg.
                 $5 - (-3) = 5 + 3$

(−) becomes +   eg.
                 $5 + (-3) = 5 - 3$

(−) becomes −

(+) becomes −

Multiplication/Division

(+) × (+)   becomes +   eg.
(−) × (−)   becomes + $(-5) × (-3) = 15$
(+) × (−)   becomes −   eg.
(−) × (+)   becomes − $(-5) × 3 = -15$

Grade 2

Prime Numbers

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, ...

Each prime number has
exactly two factors.

Area of a triangle $= \dfrac{b × h}{2}$

Area of trapezium $= \frac{1}{2}(a + b)h$

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Pythagoras

$$a^2 + b^2 = c^2$$

The Laws of Indices

$$x^a \times x^b = x^{a+b}$$

$$x^a \div x^b = x^{a-b}$$

$$(x^a)^b = x^{ab}$$

$$x^{-a} = \frac{1}{x^a}$$

1. (*a*) Write the following numbers in order of size.
Start with the smallest number.

−6   6   −5   0   12

....

(Total for Question 1 is 1 mark)

2.
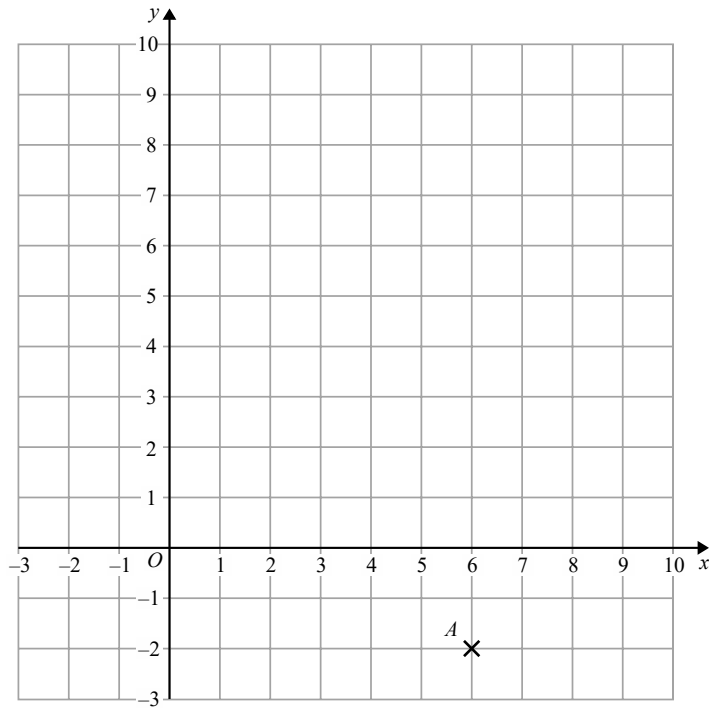
Plot the point with coordinates (2, 9).
Label this point *B*.

(Total for Question 2 is 1 mark)

3. A shop sells desktop computers, laptops and tablets.

The composite bar chart shows information about sales over the last three years.
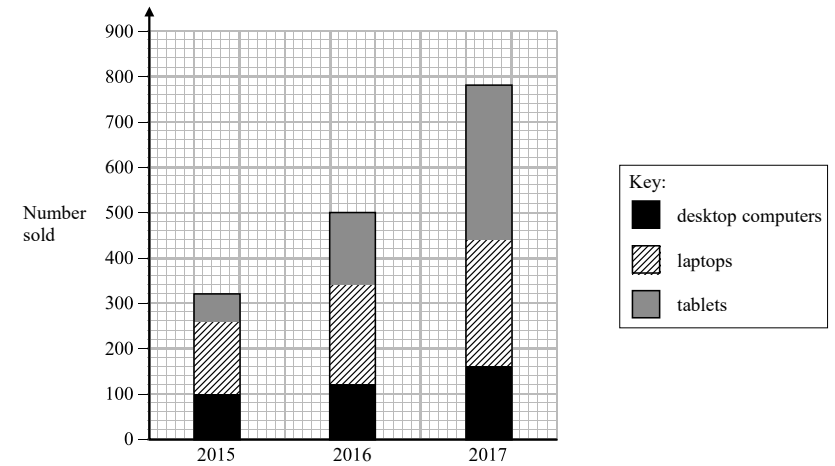
(*a*) Write down the number of desktop computers sold in 2015.

....

(1)

(*b*) Work out the total number of laptops sold in the 3 years.

....

(3)

(Total for Question 3 is 4 marks)

4. Here is a probability scale.
It shows the probability of each of the events A, B, C and D.

A   B   C   D

0                    $\frac{1}{2}$ 1
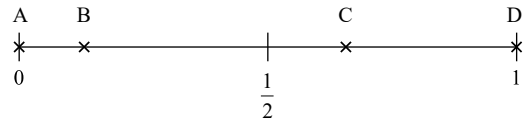
Write down the letter of the event that is certain.

....
(Total for Question 4 is 1 mark)

5. Write 6324 correct to the nearest thousand.

....
(Total for Question 5 is 1 mark)

6. Emma has 45 rabbits.

30 of the rabbits are male.
8 of the female rabbits have short hair.
12 of the rabbits with long hair are male.

Use the information to complete the two-way table.

	Male	Female	Total
Long hair	12		
Short hair		8	
Total	30		45

(Total for Question 6 is 3 marks)

7. Here are the first four terms of a number sequence.

2   5   11   23

The rule to continue this sequence is

multiply the previous term by 2 and then add 1

Work out the 5th term of this sequence.

....
(Total for Question 7 is 1 mark)

8. Simplify $3 \times 4t$

....
(Total for Question 8 is 1 mark)

9. Write down the first even multiple of 7.

....
(Total for Question 9 is 1 mark)

10. Here are four numbers.

−9   −2   2   9

Write one of these numbers in each box to make a correct calculation.

$$\boxed{} + \boxed{} = -7$$

(Total for Question 13 is 1 mark)

1. Here is a list of four fractions.

$$\frac{4}{16} \qquad \frac{2}{8} \qquad \frac{15}{60} \qquad \frac{3}{9}$$

One of these fractions is **not** equivalent to $\frac{1}{4}$

Write down this fraction.

....

(Total for Question 10 is 1 mark)

2. There are 30 children in a nursery school.

At least 1 adult is needed for every 8 children in the nursery.

(a) Work out the least number of adults needed in the nursery.

....

(2)

2 more children join the nursery.

(b) Does this mean that more adults are needed in the nursery?
You must give a reason for your answer.

....

(1)

(Total for Question 12 is 3 marks)

3.
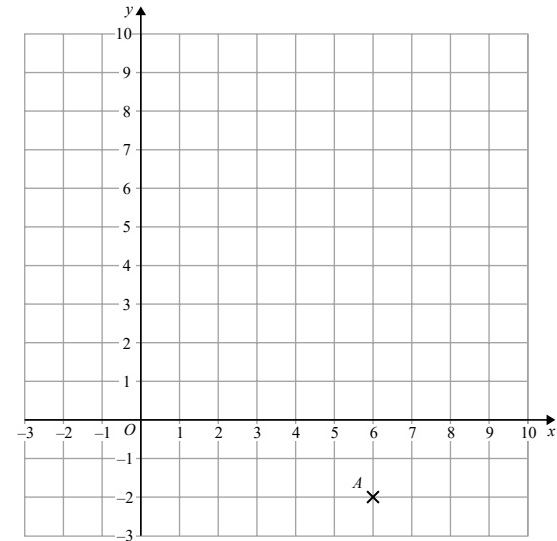
Write down the coordinates of the point A.

(........................ , ...)

(Total for Question 14 is 1 mark)

4. Write 20% as a fraction.

....

(Total for Question 15 is 1 mark)

5. Here is a probability scale.
It shows the probability of each of the events A, B, C and D.
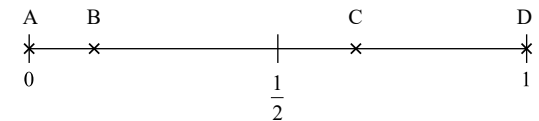
Write down the letter of the event that is unlikely.   ....

(Total for Question 16 is 1 mark)

6. Simplify $8a - 3a + 2a$

....
(1)

(Total for Question 17 is 1 mark)

7.   Write the following numbers in order of size.
Start with the smallest number.

0.078   0.78   0.87   0.708

....

(Total for Question 19 is 1 mark)

8.   The length of a rectangle is twice as long as the width of the rectangle.
The area of the rectangle is 32 cm².

Draw the rectangle on the centimetre grid.
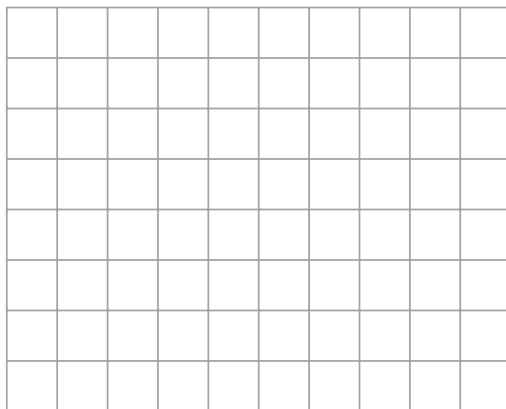
(Total for Question 20 is 2 marks)

9.   3 kg of meat costs £54.
Nina buys 2 kg of the meat.

Work out how much Nina pays.

£ ....

(Total for Question 21 is 2 marks)

10.   The centre of this circle is marked with a cross (×).
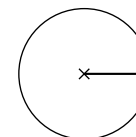
Write down the mathematical name of the straight line shown in the circle.

....

(Total for Question 9 is 2 marks)

11.   Work out 15% of 160 grams.

.... grams

(Total for Question 23 is 2 marks)

Homework 3 – Non-calculator

1   Work out $2 + 7 \times 10$

....

(Total for Question 24 is 1 mark)

2.   Change 365 cm into metres.

.... m

(Total for Question 26 is 1 mark)

3.   Harry, Regan and Kelan share £450 in the ratio 2 : 5 : 3
How much money does Kelan get?

£...

(Total for Question 28 is 2 marks)

4. $P = 4x + 3y$
$x = 5$
$y = -2$

(*a*) Work out the value of *P*.

....
(2)

(*b*) Expand $4e(e + 2)$

....
(2)

(Total for Question 31 is 4 marks)

5.   Work out $\dfrac{2}{5} + \dfrac{1}{4}$

....

(Total for Question 40 is 2 marks)

6. There are 3 cards in Box **A** and 3 cards in Box **B**.
There is a number on each card.

Box **A**   Box **B**
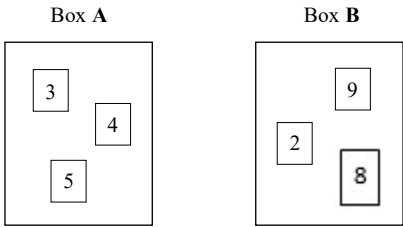
Ryan takes at random a card from Box **A** and a card from Box **B**.
What are all the different combinations of numbers possible?.

....

(Total for Question 32 is 2 marks)

7. Change 2.7 kg into grams.

.... g

(Total for Question 34 is 1 mark)

8. Write down an example to show that the following two statement is **not** correct.
"The factors of an even number are always even."

....

(Total for Question 35 is 1 mark)

9. Write 36 as a product of its prime factors.

....

(Total for Question 41 is 2 marks)

10. Solve $3(m - 4) = 21$

$m =$ ....

(Total for Question 16 is 2 marks)